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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/837,914	04/18/2001	Sam Heidari	VELCP010X1	8857

28436 7590 07/07/2004

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EXAMINER

ZHENG, EVA Y

ART UNIT	PAPER NUMBER
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2634

DATE MAILED: 07/07/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/837,914

Applicant(s)

HEIDARI ET AL.

Examiner

Eva Yi Zheng

Art Unit

2634

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 April 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Specification

1. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

2. The abstract of the disclosure is objected to because it's length and not concise.

Correction is required. See MPEP § 608.01(b).

Claim Objections

3. Claim 4 is objected to because of the following informalities:

On line 1-2, phrase: " the at least one communication medium" should be changed to --
an at least one communication medium--.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

Art Unit: 2634

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1-3, 6-11, and 14-20 are rejected under 35 U.S.C. 102(b) as being anticipated by Rybicki et al. (5,781,728).

a) Regarding claim 1, Rybicki et al. disclose a communication device for coupling to a communication medium to communicate at least one communication channel thereon via an analog signal with a multitone modulation; and the communication device comprising:

a converter (22 in Fig. 2) for converting the analog signal from the communication medium to digital samples and vice versa (14 in Fig. 1); and

a Fourier transform engine (23 and 24 in Fig. 2) coupled to the converter for transforming from a time domain to a frequency domain successive tone sets represented by the digital samples to demodulate the at least one communication channel and vice-versa (12 and 13 in Fig. 1), and the Fourier transform engine providing a selectable tone spacing for the successive tone sets of the at least one communication channel to alter a bandwidth of the least one communication channel across the communication medium (Col 4, L12-39).

b) Regarding claims 2, 10 and 18, Rybicki et al. disclose the communication device of claim 1, further comprising:

a variable interpolator (110 in Fig. 8) with an input coupled to the Fourier transform engine (106 in Fig. 8) and an output coupled to the converter (142 in Fig. 8) for interpolating the digital samples from the Fourier transform engine by an amount which corresponds inversely with the selected tone spacing to allow the converter to convert the digital samples to the analog signal at a fixed sampling rate for all the selectable tone spacings provided by the Fourier transform engine (Col 5, L52-57).

c) Regarding claims 3, 11 and 19, Rybicki et al. disclose the communication device of claim 1, further comprising:

a variable decimator (205 in Fig. 12) with an input coupled to the converter (203 in Fig. 12) and an output coupled to the Fourier transform engine (210 in Fig. 12) for decimating the digital samples from the converter by an amount which corresponds inversely with the selected tone spacing to allow the converter to convert the analog signal to the digital samples at a fixed sampling rate for all the selectable tone spacings provided by the Fourier transform engine (Col 8, 44-45; as shown in Fig. 12).

d) Regarding claims 6 and 14, Rybicki et al. disclose the communication device of Claim 1, wherein the Fourier transform engine provides the selectable tone spacing by providing a selectable processing interval for transforming the successive tone sets of the at least one communication channel between the time and the frequency domains (Col 3, L56-63; Col 4, L31-35).

e) Regarding claims 7, 15 and 20, Rybicki et al. disclose the communication device of Claim 1, with the tone spacing for successive tone sets of the at least one

communication channel determined by a bandwidth availability on the communication medium (Fig 1 and 2; Col 3, L 41-55).

f) Regarding claims 8 and 16, Rybicki et al. disclose the communication device of Claim 1, wherein the at least one communication medium comprises one of a wired and a wireless medium (as shown in Fig. 3).

g) Regarding claim 9, Rybicki et al. disclose a logical modem coupling to a communication medium to communicate at least one communication channel thereon via an analog signal with a multi-tone modulation; and the communication device comprising:

an analog front end (AFE) (22 in Fig. 2) for converting the analog signal from the communication medium to digital samples and vice versa (14 in Fig. 1); and

a digital signal processor (DSP) (25 in Fig. 2) coupled to the AFE for transforming from a time domain to a frequency domain successive tone sets represented by the digital samples to demodulate the at least one communication channel and vice-versa (11 in Fig. 1), and DSP providing a selectable tone spacing for the successive tone sets of the at least one communication channel to alter a bandwidth of the at least one communication channel across the communication medium (Col 3, L41-55).

h) Regarding claim 17, Rybicki et al. disclose a method for communicating at least one communication channel across a communication medium via an analog signal with a multi-tone modulation; and the method comprising:

converting the analog signal from the communication medium to digital samples (22 in Fig. 2) and vice versa (14 in Fig. 1);

transforming from a time domain to a frequency domain successive tone sets represented by the digital samples to demodulate the at least one communication channel (23 and 24 in Fig. 2) and vice-versa (12 and 13 in Fig. 1); and

selecting a tone spacing for the successive tone sets of the at least one communication channel to alter a bandwidth of the at least one communication channel across the communication medium (110 in Fig. 8; 205 in Fig. 12).

6. Claims 1, 4, 5, 9, 12, and 13 are rejected under 35 U.S.C. 102(e) as being anticipated by Mannering et al. (6,137,839)

a) Regarding claims 1 and 9, Mannering et al. disclose a communication device for coupling to a communication medium to communicate at least one communication channel thereon via an analog signal with a multitone modulation; and the communication device comprising:

a converter (172 in Fig. 1b; or 240 in Fig. 2c) for converting the analog signal from the communication medium to digital samples and vice versa (170 in Fig. 1b); and

a Fourier transform engine (150 in Fig. 1b) coupled to the converter for transforming from a time domain to a frequency domain successive tone sets represented by the digital samples to demodulate the at least one communication channel and vice-versa, and the Fourier transform engine providing a selectable tone spacing for the successive tone sets of the at least one communication channel to alter a bandwidth of the least one communication channel across the communication medium.

b) Regarding claims 4 and 12, Mannering et al. disclose the communication device wherein the at least one communication medium comprise a plurality of subscriber lines (as shown in Fig. 2b); the at least one communication channel comprises a plurality of communication channels each associated with a corresponding one of the plurality of subscriber lines; and wherein further (as shown in Fig. 2b):

the Fourier transform engine supports modulation and demodulation of each of the plurality of communication channels (as shown in Fig. 1b).

c) Regarding claims 5 and 13, Mannering et al. disclose the communication device wherein the Fourier transform engine supports modulation and demodulation of the at least one communication channel in a plurality of multi-tone protocols (as shown in Fig. 1b) with a distinct number of tones within each associated tone set and with the Fourier transform engine supporting for at least one of the multi-tone protocols the selectable tone spacing (Col 7, L36-54).

Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eva Yi Zheng whose telephone number is 703-305-8699. The examiner can normally be reached on 7:30-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin can be reached on 703-305-4714. The fax phone number for the organization where this application or proceeding is assigned is 703-879-9306.

Any response to this action should be mailed to:

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Commissioner of Patents and Trademarks
Washington, D.C. 20231

or faxed to:

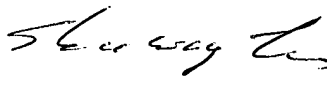
(703) 872-9314 (for Technology Center 2600 only)

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

Eva Yi Zheng
Examiner
Art Unit 2634

June 25, 2004


SHUWANG LIU
PRIMARY EXAMINER